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SPECIFICATION FOR PLASTIC SPECTACLE FRAMES

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Indian Standard
SPECIFICATION FOR PLASTIC SPECTACLE FRAMES

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Indian Standard

SPECIFICATION FOR PLASTIC SPECTACLE FRAMES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 12 July 1966, after the draft finalized by the Plastics Sectional Committee had been approved by the Chemical Division Council.

0.2 Plastic spectacle frames are being manufactured in large quantities in India. This standard is intended to serve as a guide for assisting the manufacturers to improve the quality of spectacle frames currently produced in the country. The Sectional Committee responsible for the preparation of this draft standard has taken special care to see that the consumer interest is fully protected.

0.3 In the preparation of this standard, assistance has been derived from the following specifications:

B.S. 3352-1962 Specification for spectacle frames made of cellulose acetate. British Standards Institution.

B.S. 3521-1962 Glossary of terms relating to ophthalmic lenses and spectacle frames. British Standards Institution.

0.4 This standard contains clauses which call for agreement between the purchaser and the supplier and which permit the purchaser to use his option for selection to suit his requirements. The relevant clauses are **3.3** and **4.1**.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling for plastic spectacle frames.

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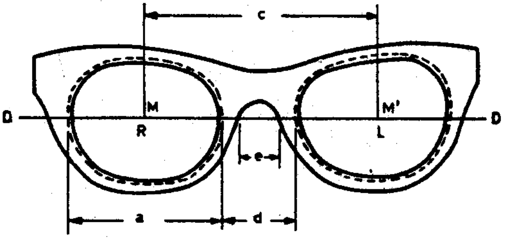
*Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.0 For the purpose of this standard, the definitions given in IS : 2828-1964* and the following shall apply.

2.1 Bridge — That part of the front which forms the main connection between the lenses or the rims. The bridge assembly is generally taken to include the pads, if any.

2.2 Datum Centre (dat *c*) — The mid-point of that part of the datum line which is bounded by the lens shape (Fig. 1).



NOTE — The dotted curves represent peak of bevel or bottom of groove.

DD = datum line of frame

M = datum centre of right lens

M' = datum centre of left lens

a = datum length of lens

c = datum centre distance

d = distance between lenses

e = distance between rims (dat)

FIG. 1 FRONT OF PLASTIC SPECTACLE FRAMES

2.3 Datum Line — The line midway between, and parallel to, the horizontal tangents at the highest and the lowest points of a lens (*DD* in Fig. 1).

2.4 Distance Between Lenses — The horizontal distance, measured along the datum line between the nasal edges of the lenses (*d* in Fig. 1).

2.5 Front — The part of the frame or mount comprising the bridge, rims, if any, joints and lugs.

2.6 Joint — a) The hinge linking the side and the front.

b) That part of, or attachment to, the rim which provides the means of pivoting the side and closing the side upon the lens.

2.7 Lug — An extension at each end of the front to which the joint or side is attached.

2.8 Pad — An extension of, or attachment to, the bridge or the rim to bear on the nose.

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*Glossary of terms used in the plastics industry.

2.9 Rim — That part of the frame or mount which partly or completely surrounds the lens.

2.10 Side (Temple) — An extension of, or attachment to, the front passing towards or over the ear.

3. REQUIREMENTS

3.1 Material — The frames shall be made from cellulose nitrate or cellulose acetate sheets or similar plastic sheets of 3·5 to 8 mm thickness.

3.2 Freedom from Defects — The frames shall be free from faults, blemishes and cracks.

3.3 Dimensions — The dimensions of the frames shall be as agreed to between the manufacturer and the consumer. The side length dimensions shall be subject to a tolerance of ±1 mm and shall be measured from the joint up to the bend of the side. All other linear dimensions, excepting the thicknesses specified under **3.4**, shall be subject to a tolerance of ±0·5 mm.

3.4 Front

3.4.1 *Thickness of the Front* — The thickness of the front (*see* Fig. 2), excluding the ends of the lugs, shall be nowhere less than 3·4 mm.

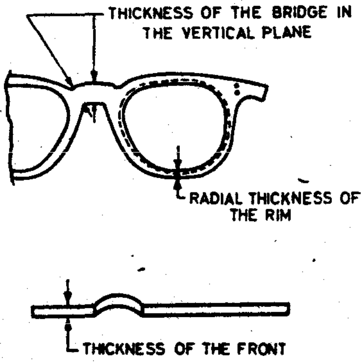
THICKNESS OF THE BRIDGE IN THE VERTICAL PLANE
RADIAL THICKNESS OF THE RIM
THICKNESS OF THE FRONT

FIG. 2 DIMENSIONS OF PLASTIC SPECTACLE FRAMES

3.4.2 *Thickness of the Bridge in the Vertical Plane* — The thickness of the bridge in the vertical plane of the frames (*see* Fig. 2) shall be in accordance with Table 1 unless otherwise agreed to between the purchaser and the supplier.

3.4.3 *Rims* — The rims shall match for shape and size.

TABLE 1 THICKNESS OF THE BRIDGE IN THE VERTICAL PLANE OF SPECTACLE FRAMES

(*Clause* 3.4.2)

Sl No.	Lens Size	Thickness in the Vertical Plane of Bridge, *Min*		
		16-mm DBL*	18- and 20-mm DBL*	22- and 24-mm DBL*
(1)	(2)	(3)	(4)	(5)
i)	Up to 38	5·0	5·25	5·5
ii)	38 to 42	5·5	5·75	6·0
iii)	Over 42	6·0	6·25	6·5

*DBL — Distance between lenses (*d* in Fig 1).

3.4.4 *Radial Thickness of the Rims* — The radial thickness (*see* Fig. 2) of the rims shall be not less than 1·5 mm.

3.4.5 *Grooves* — Grooves shall be *v*- or *u*-shaped, suitably placed and symmetrically formed, and shall be of 0·6 ± 0·1 mm depth. The grooves and the inner surfaces of the rims shall be smoothly finished.

3.4.6 *Pads* — Pads shall be at the same height relative to the datum line of the frame. In case the pads are not integral with the front, they shall be neatly and firmly cemented to the frame.

3.5 Joints, Rivets, Reinforcing Wires and Screws — Joints, rivets, reinforcing wires and screws shall be maoe of nickel-silver alloy. The percentage of nickel present shall be as follows:

Component	*Nickel Content Percent by Weight, Min*
Joints	14
Rivet and screws	12
Reinforcing wires	17

3.5.1 *Joints* — The joints shall be so designed and made as to ensure a smooth movement. Each side shall be able to move easily and shall not fall under its own weight.

3.5.2 *Rivets* — The rivets used for attaching the joint to the side shall pass through the flattened portion of the reinforcing wire.

3.5.3 *Reinforcing Wires* — Reinforcing wires shall be not less than 1·3 mm in diameter.

3.5.4 *Screws* — The form and dimensions of the screws shall be suitable to the joints used. The length of the screws shall be such that, when fitted into the joint, they shall give full thread engagements without excessive protrusion from the joint surface.

3.6 Finish

3.6.1 All sharp edges and corners, file marks and roughness shall be removed before polishing.

3.6.2 The joints shall be neatly and securely fitted and polished and shall show no signs of damage through filing or other causes.

3.6.3 The rivets shall be fixed in such a manner that neither the wire nor the surrounding material shall be split, cracked or damaged.

3.6.4 The screw heads shall be undamaged.

3.6.5 The front and the sides shall match neatly at the lug.

4. PACKING AND MARKING

4.1 Packing — The spectacle frames shall be packed as agreed to between the purchaser and the supplier.

4.2 Marking — The spectacle frames shall be marked with the following information:

a) Lens size to be fitted,
b) Distance between lenses, and
c) Manufacturer's name and trade-mark, if any.

4.2.1 The spectacle frames may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. SAMPLING

5.1 Lot — In any consignment all the frames of the same lens size and drawn from a single batch of manufacture shall be grouped together to constitute a lot.

5.1.1 The number of frames to be selected from the lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

TABLE 2 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES

(*Clause* 5.1.1)

LOT SIZE *N* (1)	NUMBER OF SAMPLES TO BE SELECTED *n* (2)	PERMISSIBLE NUMBER OF DEFECTIVES (3)
Up to 100	5	0
101 „ 150	8	1
151 „ 300	13	1
301 „ 500	20	2
501 „ 1 000	32	3
1 001 „ 3 000	50	5
3 001 and above	80	7

5.1.2 These frames shall be selected at random from the lot. For this purpose, a number of packets equal to *n* as given in col 2 of Table 2 shall first be chosen from different places of the delivery consignment and from each of the packets so chosen, one frame shall be selected at random.

5.2 Number of Tests — All the frames selected as in col 2 of Table 2 shall be inspected for all the requirements specified in this standard. A frame failing to satisfy any one or more of these requirements shall be regarded as defective.

5.3 Criterion for Conformity — A lot shall be considered as conforming to the requirements of this specification if the total number of defective frames in the sample does not exceed the number given in col 3 of Table 2, otherwise not.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 $kg.m/s^2$
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	2 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

INDIAN STANDARDS INSTITUTION
Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002
Telephones : 26 60 21, 27 01 31 Telegrams : Manaksanstha

Regional Offices:

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